WOXCON

User Manual

TPUH412

HDBaseT Extender

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Version: TPUH412_2017V1.2

Preface

Read this user manual carefully before using this product. Pictures shown in this manual is for reference only, different model and specifications are subject to real product.

This manual is only for operation instruction only, not for any maintenance usage. The functions described in this version are updated till June 20, 2017. In the constant effort to improve our product, we reserve the right to make functions or parameters changes without notice or obligation. Please refer to the dealers for the latest details.

FCC Statement

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. It has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a commercial installation.

Operation of this equipment in a residential area is likely to cause interference, in which case the user at their own expense will be required to take whatever measures may be necessary to correct the interference.

Any changes or modifications not expressly approved by the manufacture would void the user's authority to operate the equipment.

SAFETY PRECAUTIONS

To insure the best from the product, please read all instructions carefully before using the device. Save this manual for further reference.

- Unpack the equipment carefully and save the original box and packing material for possible future shipment
- Follow basic safety precautions to reduce the risk of fire, electrical shock and injury to persons.
- Do not dismantle the housing or modify the module. It may result in electrical shock or burn.
- Using supplies or parts not meeting the products' specifications may cause damage, deterioration or malfunction.
- Refer all servicing to qualified service personnel.
- To prevent fire or shock hazard, do not expose the unit to rain, moisture or install this product near water.
- Do not put any heavy items on the extension cable in case of extrusion.
- Do not remove the housing of the device as opening or removing housing may expose you to dangerous voltage or other hazards.
- Install the device in a place with fine ventilation to avoid damage caused by overheat.
- Keep the module away from liquids.
- Spillage into the housing may result in fire, electrical shock, or equipment damage. If an object or liquid falls or spills on to the housing, unplug the module immediately.
- Do not twist or pull by force ends of the optical cable. It can cause malfunction.
- Do not use liquid or aerosol cleaners to clean this unit. Always unplug the power to the device before cleaning.
- Unplug the power cord when left unused for a long period of time.
- Information on disposal for scrapped devices: do not burn or mix with general household waste, please treat them as normal electrical wastes.

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1. Introduction

1.1 Introduction to TPUH412

The TPUH412 is a mini-size extender set consists of TPUH412T transmitter and TPUH412R receiver. HDBaseT technology is used to transmit high-resolution 1080p/ 4k signal from transmitter to the receiver via a CAT5e/CAT6a cable at a distance of up to 70/40m.Moreover, TPUH412 supports CEC, bi-directional RS232&IR control, and bi-directional PoH function.

1.2 Features

- Support Full HD: Delivers high resolution image (1080p@60Hz@48 b/pixels/3D/4Kx2K).
- Maximum transmission distance is 70m for 1080p and 40m for 4Kx2K over single CAT5e/CAT6a cable.
- High Bandwidth: 10.2Gps.
- HDTV Compatible, use HDMI 1.4 and HDCP2.2 compliant.
- Support CEC/IR/RS232 pass-through.
- Support bi-directional PoH function.
- Bi-directional RS232/IR control.
- Use HDBaseT technology.
- LED indicators show work status.

1.3 Package Contents

Transmitter	• 1 x TPUH412 Transmitter • 2 x Mounting Ears with 4 Screws • 4 x Plastic Cushions • 1 x RS232 Cable • 1 x Power Adapter (DC 24V 1.25A)
Receiver	• 1 x TPUH412R Receiver • 2 x Mounting Ears with 4 Screws • 4 x Plastic Cushions • 1 x RS232 Cable
	• 1 x User Manual

2. Panel Description

2.1 TPUH412T Transmitter

No.	Name	Description
①	LINK	HDBT Link status indicator: • OFF: No Link • GREEN:Link Successful • Blinking GREEN: Link abnormal
②	HDCP	HDCP compliant indicator • OFF: No HDMI traffic (no picture) • GREEN: Traffic with HDCP • Blinking GREEN: Traffic without HDCP
③	Power	OFF: No power; RED: DC power present.
④	RS232	RS232 connector.
⑤	IR IN	Connect with 5V IR receiver (with carrier) to collect infrared signal, work with far-end IR OUT port.
⑥	IR OUT	Connect with 5V IR emitter to send infrared signal, work with far-end IR IN port.
⑦	HDMI IN	Connect with HDMI source.
⑧	HDBT OUT	Connect to the HDBT IN socket on the Receiver via CAT5e/ CAT6a cable, support bi-directional PoH function.
⑨	DC 24V	Connect with power supply (Not necessary if receiver connects with power adaptor).

🕮 Pictures shown in this manual are only for reference.

2.2 TPUH412R Receiver

No.	Name	Description
①	LINK	HDBT Link status indicator: • OFF: No Link • GREEN:Link Successful • Blinking GREEN: Link abnormal
②	HDCP	HDCP compliant indicator • OFF: No HDMI traffic (no picture) • GREEN: Traffic with HDCP. • Blinking GREEN: Traffic without HDCP
③	Power	OFF: No power; RED: DC power present.
④	RS232	RS232 connector.
⑤	IR IN	Connect with 5V IR receiver (with carrier) to collect infrared signal, work with far-end IR OUT port
⑥	IR OUT	Connect with 5V IR emitter to send infrared signal, work with far-end IR IN port
⑦	HDMI OUT	Connect with HDMI display
⑧	HDBT IN	Connect to the HDBT OUT socket on the transmitter via CAT5e/ CAT6a cable.
⑨	DC 24V	Connect with power supply (Not necessary if transmitter connects with power adaptor).

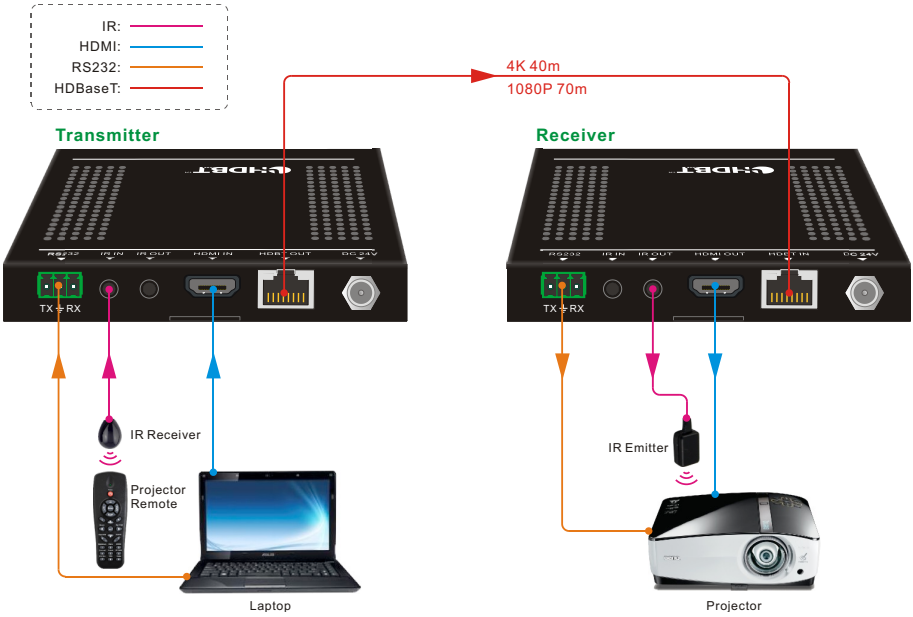
🕮 Pictures shown in this manual are only for reference.

3. System Connection

3.1 Usage Precaution

- System should be installed in a clean environment and has a prop temperature and humidity.
- All of the power switches, plugs, sockets and power cords should be insulated and safety.
- All devices should be connected before power on.
- Use shielded straight-thru CAT5e/CAT6a cable with TIA/EIA T568B terminations for good transmission effect.

3.2 System Diagram



3.3 Connection Procedure

Step1. Connect HDMI source (such as Blue-ray DVD) to HDMI IN port of transmitter with HDMI cable.

Step2. Connect HDBT OUT port of transmitter and HDBT IN port of receiver, with single CAT5e/CAT6a cable.

Step3. Connect HDMI displayer (such as HDTV) to HDMI OUT port of receiver with HDMI cable.

Step4. Both transmitter and receiver have IR IN and OUT. When one end is used as an IR receiver, the signal sent from the end can only be transmitted via the other end.

For example: When “IR IN” of transmitter connects with an IR receiver, the IR emitter must connect to IR OUT of Receiver.

Step5. Connect the RS232 port of the devices to be controlled and the receiver or the transmitter.

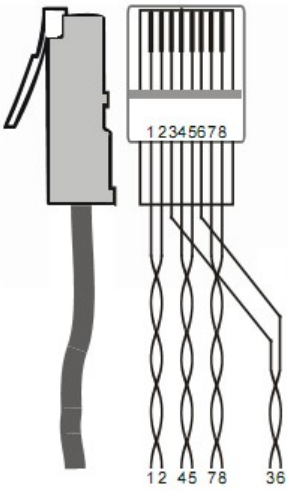
Step6. Connect with DC24V power adaptor(s) One is enough if Transmitter or Receiver is connected with adapter as its PoH function).

3.4 Twisted Pair Cable Connection

The twisted pair used in this extender MUST be a straight-through cable.

TIA/EIA T568A	
Pin	Cable color
1	green white
2	green
3	orange white
4	blue
5	blue white
6	orange
7	brown white
8	brown
1st Ground	4--5
2nd Ground	3--6
3rd Group	1--2
4th Group	7--8

TIA/EIA T568B	
Pin	Cable color
1	orange white
2	orange
3	green white
4	blue
5	blue white
6	green
7	brown white
8	brown
1st Ground	4--5
2nd Ground	1--2
3rd Group	3--6
4th Group	7--8



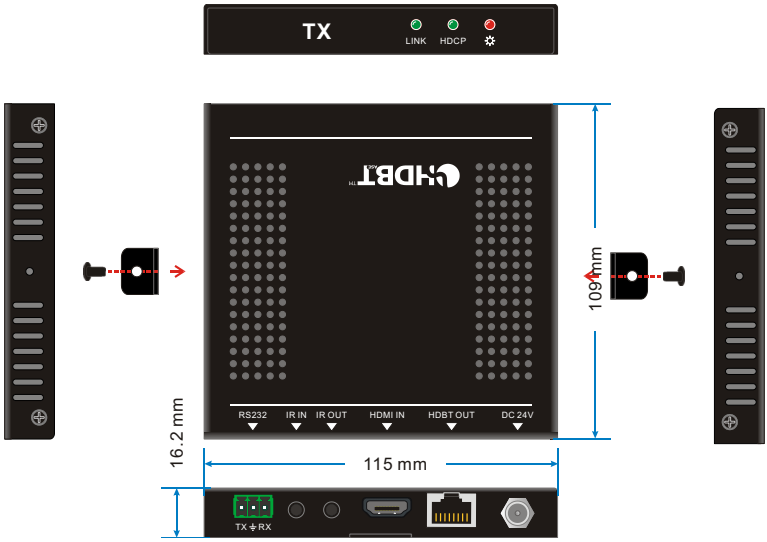
Notice: Cable connectors MUST be metal one, the shielded layer of cable MUST be connected to the connector’s metal shell, to make a better transmission.

4. Specification

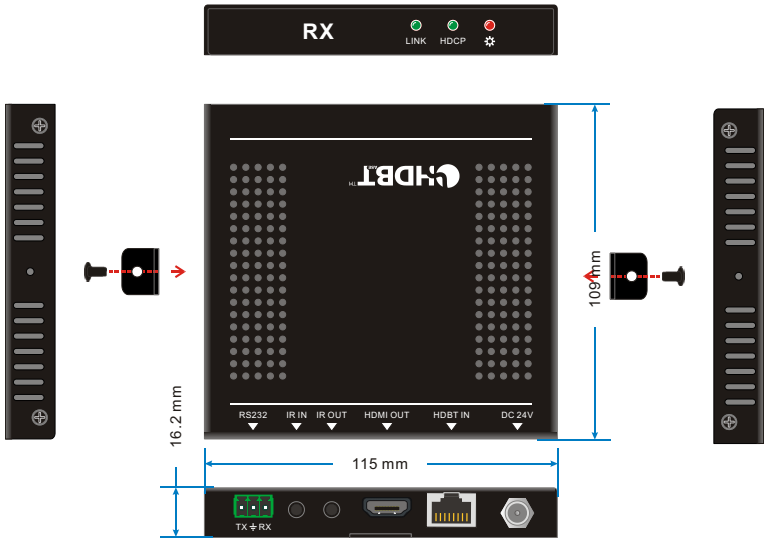
TPUH412T Transmitter	
Input	(1) HDMI; (1) IR; (1) RS232
Input Connector	(1) Female HDMI; (1) 3.5mm mini jack; (1) 3p captive screw connector
Audio	Digital audio, transmit through HDMI audio
Output	(1) HDBaseT (1) IR; (1) RS232
Output Connector	(1) RJ-45; (1) 3.5mm mini jack; (1) 3p captive screw connector
TPUH412R Receiver	
Input	(1) IR; (1) HDBaseT; (1) RS232
Input Connector	(1) 3.5mm mini jack; (1) RJ-45; (1) 3p captive screw connector
Audio	Digital audio, transmit through HDMI audio
Output	(1) HDMI; (1) IR; (1) RS232
Output Connector	(1) Female HDMI; (1) 3.5mm mini jack; (1) 3p captive screw connector
General	
Resolution Range	640x480@60Hz~4K×2K@30Hz
Transmission Mode	HD Base T
Transmission Distance	1080p ≤ 70m; 4Kx2K ≤ 40m
Bandwidth	10.2Gbps
HDMI Standard	Support HDMI1.4 and HDCP2.2
Impedance	75Ω
Temperature	0~ 50℃
Humidity	10% ~ 90%
Power Supply	Input: 100VAC~240VAC, 50/60Hz; Output: DC 24V, 1.25A
Power Consumption	14W
Dimension (W*H*D)	115mmx16.2mm x109mm
Net Weight	Transmitter: 193g; Receiver:196g

Note: All nominal levels are at ±10%.

5. Panel Drawing



5-1 Transmitter



5-2 Receiver

6. Troubleshooting & Maintenance

- **No image on display:**
  - Ensure that the display device has been set to the correct input.
  - Ensure that the HDMI cables used for both the source/transmitter and the receiver/display are properly connected and are working. Test the HDMI cables directly from a source to display and ensure their operation.
  - Ensure that the CAT5e/CAT6a cable has not been damaged and that it has been terminated correctly with T568B on both ends. A temporary length of CAT5e/Cat6 can be used for testing to ensure that the devices are all compatible and working properly.
  - Ensure proper grounding of the power supply.
  - Known issues with HDMI 1.2 source devices:
  - Older compatibility (HDMI 1.2) may result in HDBaseT transmission issues. Please contact Technical Support of your director for a solution to these issues.

- **Color lose or poor picture quality:**
  - Ensure that the HDMI cables used for both the source and transmitter and the receiver and display are properly connected and are of good quality. Test the HDMI cables directly from a source to display and ensure their picture quality.
  - Ensure proper grounding of the power supply.
  - If the static becomes stronger or picture quality becomes worse when connecting the video connectors, this may be due to improper grounding.
  - Check the grounding and make sure all the components are properly grounded to a common ground. Improper grounding may cause damage to the receiver.

If your problem persists after following the above troubleshooting steps, seek further help from authorized dealer or our technical support.

7. After-Sales Service

If there appear some problems when running SCU91T, please check and deal with the problems referring to this user manual. Any transport costs are borne by the users during the warranty.

1) **Product Limited Warranty:** This product will be free from defects in materials and workmanship for **three years**.
   Proof of purchase in the form of a bill of sale or receipted invoice which is evidence that the unit is within the Warranty period must be presented to obtain warranty service.

2) **What the warranty does not cover:**
   - Warranty expiration.
   - Factory applied serial number has been altered or removed from the product.
   - Damage, deterioration or malfunction caused by:
     - Normal wear and tear.
     - Use of supplies or parts not meeting our specifications.
     - No certificate or invoice as the proof of warranty.
     - The product model showed on the warranty card does not match with the model of the product for repairing or had been altered.
     - Damage caused by force majeure.
     - Servicing not authorized by distributor.
     - Any other causes which does not relate to a product defect.
   - Delivery, installation or labor charges for installation or setup of the product.

3) **Technical Support:** Email to our after-sales department or make a call, please inform us the following information about your cases.
   - Product version and name.
   - Detailed failure situations.
   - The formation of the cases.

Remarks: For any questions or problems, please try to get help from your local distributor.